

# POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS

## THREE-PHASE POWER QUALITY ANALYZERS



### POWERPAD® III MODELS 8333 & 8336

*SD card for trend recordings and data storage, extensive memory for high snapshot quantity, captured transients/inrush and alarm events*



8333

8336



**\* 3 YEAR WARRANTY ONLY APPLIES WHEN METER IS REGISTERED WITHIN 30 DAYS OF PURCHASE**



DataView®



SCAN TO LEARN MORE

MODELS	8333	8336
<b>Input Terminals</b>	4 voltage / 3 current	5 voltage / 4 current
<b>Inputs</b>	3 voltage / 3 current	4 voltage / 4 current
<b>Voltage (TRMS AC+DC)</b>	(2 to 1000) V	
<b>Voltage Ratio</b>	up to 500 kV	
<b>Current (TRMS AC+DC)</b>	MN93: 500 mA to 200 A <sub>AC</sub> ; MN193: (0.005 to 100) A <sub>AC</sub> SR193 Clamp: (1 to 1000) A <sub>AC</sub> AmpFlex® or MA193 Clamps: 100 mA to 10000 A <sub>AC</sub> MR193 Clamp: (1 to 1000) A <sub>AC</sub> / 1300 A <sub>DC</sub> SL261 Clamp: 50 mA to 100 A <sub>AC/DC</sub> Current Ratio: up to 60 kA	
<b>Frequency (Hz)</b>	(40 to 69) Hz	
<b>Distribution Systems</b>	1P 2W, 1P 3W, 2P 2W, 2P 3W, 2P 4W, 3P 3W, 3P, 4W, Split-Phase 2W & 3W and Aron meters	1P 2W, 1P 3W, 2P 2W, 2P 3W, 2P 4W, 3P 3W, 3P, 4W and 3P 5W, 2 ½ Element and Aron meters
<b>Power Values</b>	W, VA, var, VAD, PF, DPF, cos φ, tan θ	
<b>Energy Values</b>	Wh, varh, VAh, VADh	
<b>Harmonics</b>	1 <sup>st</sup> to 50 <sup>th</sup> , Direction, Sequence; THD: 0 to 50, phase	
<b>Transients</b>	up to 51	up to 210
<b>Flicker (Pst / Pft)</b>	Yes / No	Yes / Yes
<b>Unbalance</b>		Yes
<b>Recording</b>		Yes
<b>Alarm Mode</b>	10 types; 4000 recorded	40 types; 16,000 recorded
<b>Peak</b>		Yes
<b>Phasor Display</b>	Automatic	
<b>Display</b>	Color ¼ VGA TFT screen (320 x 240) diagonal 5.82 in (148 mm)	
<b>Snapshots</b>	12	50
<b>Languages</b>	> 27	
<b>Communication Interface</b>	USB	
<b>MECHANICAL</b>		
<b>Battery Life</b>	≤ 10 h, ≥ 15 h in Record mode	
<b>Power Supply</b>	9.6 V NiMH rechargeable battery pack (included) External AC supply: (110 / 230) V <sub>AC</sub> ±10 % (50 / 60) Hz	
<b>Dimensions</b>	(9.8 x 7.8 x 2.6) in (249 x 198 x 66) mm	
<b>Weight</b>	4.3 lb (1.95 kg)	
<b>SAFETY</b>		
<b>Safety Rating / IP</b>	IEC 61010, 1000 V CAT III; 600 V CAT IV / IP53	

Consult factory for NIST Calibration prices.

### PRODUCT INCLUDES

#### CAT. #2136.10 MODEL 8333 (NO PROBES)

Extra large carrying bag, soft carrying pouch, (4) 10 ft black voltage leads with alligator clips, 5 ft USB cable, (12) color-coded input ID markers, (110/240) V power adapter with US power cord, 9.6 V NiMH battery, SD card, printed quick start guide and USB drive with DataView® software and user manual.



#### CAT. #2136.30 MODEL 8336 (NO PROBES)

Extra large carrying bag, soft carrying pouch, (5) 10 ft black voltage leads with alligator clips, 5 ft USB cable, (12) color-coded input ID markers, (110/240) V power adapter with US power cord, SD card, 9.6 V NiMH battery, printed quick start guide, and USB drive with DataView® software and user manual.

### KIT OPTIONS

#### 8333

AS ABOVE WITH AMPFLEX®  
193 FLEXIBLE CURRENT PROBE  
(10 kA) CAT. # 2136.11  
24 IN, RATED 600 V CAT IV

OR

AS ABOVE, MN193 CURRENT  
PROBE (5/100 A)  
CAT. # 2136.12  
Rated 600 V CAT III

#### 8336

AS ABOVE WITH AMPFLEX®  
193 FLEXIBLE CURRENT PROBE  
(10 kA) CAT. # 2136.31  
24 IN, Rated 600 V CAT IV

OR

AS ABOVE, MN193 CURRENT  
PROBE (5/100 A)  
CAT. # 2136.32  
Rated 600 V CAT III



# POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS

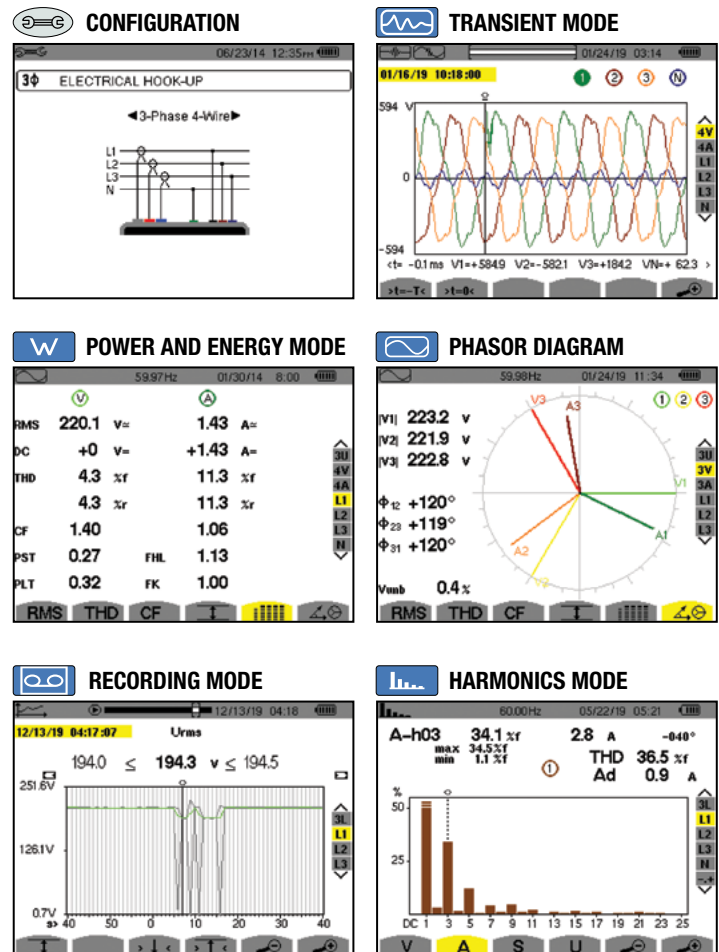
## THREE-PHASE POWER QUALITY ANALYZERS

Captures and Records  
Transients, Events & Waveforms  
Simultaneously!

### FEATURES

- True RMS single-, two- and three-phase measurements at 256 samples/cycle, plus DC
- Real-time color waveforms
- Easy-to-use on-screen setup
- Automatic current probe recognition and scaling
- True RMS voltage and current measurement
- Measures DC volts, amps and power
- Displays and captures voltage, current and power harmonics to 50<sup>th</sup> order, including direction, in real-time
- Captures transients down to 1/256<sup>th</sup> of a cycle
- Stores comprehensive data base of logged data
- Phasor diagram display
- kVA, kvar and kW per phase and total
- kVAh, kvarh and kWh per phase and total
- Neutral current calculated and displayed for three-phase
- Transformer Factor K display
- Power Factor, displacement PF display
- Captures up to 210 transients (*Model 8336*)
- Short term (*Model 8333*) and Long term (*Model 8336*) flicker display
- Phase unbalance (*current and voltage*)
- Harmonic Distortion (*total and individual*) from 1<sup>st</sup> to 50<sup>th</sup>
- Alarms, surges and sags
- Screen snapshot function captures waveforms or other information on the display
- Includes FREE DataView<sup>®</sup> software for configuring, data retrieval, real-time display, analysis and report generation

### Large Functional Displays



### ACCESSORIES/REPLACEMENTS

- CAT. #2133.73** Extra Large Classic Tool Bag (18 x 9 x 12) in
- CAT. #2140.28** AC/DC Current Probe Model MR193-BK
- CAT. #2140.32** AC Current Probe Model MN93-BK
- CAT. #2140.33** AC Current Probe Model SR193-BK
- CAT. #2140.34** AmpFlex<sup>®</sup> Sensor 24 in Model 193-24-BK
- CAT. #2140.35** AmpFlex<sup>®</sup> Sensor 36 in Model 193-36-BK
- CAT. #2140.36** AC Current Probe Model MN193-BK







- CAT. #1201.51** AC/DC Current Probe Model SL261
- CAT. #2140.40** BNC Adapter for AC/DC Current Probe Model SL261 and models for use with 8220, 8333, 8335, 8336, 8435, 8436 & PEL Series
- CAT. #2140.44** (1) 10 ft (3 M) Black Lead w/(1) Black Alligator Clip (Lead rated 1000 V CAT IV 15 A, Clip rated 1000 V CAT IV 15 A, UL)
- CAT. #2140.48** MiniFlex<sup>®</sup> Sensor 10 in Model MA193-10-BK
- CAT. #2140.50** MiniFlex<sup>®</sup> Sensor 14 in Model MA193-14-BK
- CAT. #2140.80** MiniFlex<sup>®</sup> Sensor 24 in Model MA194-24-BK
- CAT. #2140.77** Phase Power Adapter (*8333 & 8336*)

CAT. #	DESCRIPTION
2136.10	PowerPad <sup>®</sup> III Model 8333 (no probes)
2136.11	PowerPad <sup>®</sup> III Model 8333 w/3 193-24-BK Sensors
2136.12	PowerPad <sup>®</sup> III Model 8333 w/3 MN193-BK Probes
2136.30	PowerPad <sup>®</sup> III Model 8336 (no probes)
2136.31	PowerPad <sup>®</sup> III Model 8336 w/4 193-24-BK Sensors
2136.32	PowerPad <sup>®</sup> III Model 8336 w/4 MN193-BK Probes








# POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS

## OPTIONAL ACCESSORIES

MODEL	MAX CONDUCTOR SIZE	ACCURACY (TYPICAL)	TYPICAL ERROR ON $\Phi$ AT (50 / 60) HZ	CURRENT RANGE	USED WITH MODEL	CAT. #
<b>MiniFlex® Model MA193-10-BK* &amp; MiniFlex® Model MA193-14-BK* &amp; MiniFlex® Model MA194-24-BK*</b>  <b>10, 14 &amp; 24 in Sensor</b>	2.75 in (70 mm) (10 in sensor)	± 1 %	0.5 °	100 mA to 12,000 A <sub>AC</sub> <sup>(1)</sup>	PEL 52 PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.48 (10 in sensor)
	3.94 in (100 mm) (14 in sensor)					2140.50 (14 in sensor)
	7.64 in (194 mm) (24 in sensor)					2140.80 (24 in sensor)
<b>AC / DC Current Probe Model MR193-BK</b> 	1.6 in (41 mm)	± 2.5 %	-0.80 °	(1 to 1000) A <sub>AC</sub> (1 to 1300) A <sub>DC</sub>	PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.28
<b>AC Current Probe Model MN93-BK</b> 	0.78 in (20 mm)	± 1 %	0.8 °	(0.5 to 240) A <sub>AC</sub>	PEL 52 PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.32
<b>AC Current Probe Model SR193-BK</b> 	2.05 in (52 mm)	± 0.3 %	0.2 °	(1 to 1200) A <sub>AC</sub>	PEL 52 PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.33
<b>AmpFlex® Sensor 24 in Model 193-24-BK*</b> 	7.64 in (194 mm) (24 in sensor)	± 1 %	0.5 °	100 mA to 12,000 A <sub>AC</sub> <sup>(1)</sup>	PEL 52 PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.34
<b>AmpFlex® Sensor 36 in Model 193-36-BK*</b> 	11.64 in (291 mm) (36 in sensor)	± 1 %	0.5 °	100 mA to 12,000 A <sub>AC</sub> <sup>(1)</sup>	PEL 52 PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.35

# POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS OPTIONAL ACCESSORIES

MODEL	MAX CONDUCTOR SIZE	ACCURACY (TYPICAL)	TYPICAL ERROR ON $\phi$ AT (50 / 60) HZ	CURRENT RANGE		USED WITH MODEL	CAT. #
<b>AC Current Probe Model MN193-BK</b> 	0.78 in (20 mm)	± 1 %	0.75 °	100 A	200 mA to 120 AAC	PEL 52 PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.36
			1.7 °	5 A	5 mA to 6 AAC		
<b>AmpFlex® Sensor 24 in Model 196A-24-BK* (Waterproof IP67)</b> 	7.64 in (194 mm) (24 in sensor)	± 1 %	0 °	100 mA to 12,000 AAC <sup>(1)</sup>		PEL 105 8436	2140.75
<b>MiniFlex® Sensor 14 in Model MA196-14-BK* (Waterproof IP67)</b> 	3.9 in (99 mm) (14 in sensor)	± 1 %	0 °	100 mA to 12,000 AAC <sup>(1)</sup>		PEL 105 8436	2140.79
<b>AC Current Probe Model MN94</b> 	0.25 in (7 mm)	± 0.2 %	0.1 °	50 mA to 200 AAC		PEL 52 8345	2140.81
<b>AC / DC Current Probe Model E94</b> 	.464 in (11.8 mm)	± 3 %	1.5 °	10 A	100 mA to 10 AAC	8345	2140.82
		± 4 %	1 °	100 A	500 mA to 100 AAC		

\* Maximum current reduced by a factor of 2 for 400 Hz fundamental frequency.

All current sensors can be used with Models PEL 105 and 8436. However, only the MA196-14-BK and 196A-24-BK flexible sensors are waterproof.

(1) Current range may be limited by sensor size or meter type.

Consult factory for NIST Calibration prices.

# POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS SELECTION CHART

MODEL	CAT. #	INPUT TERMINALS	CHANNELS	RMS VOLTAGE MAX PHASE-TO-NEUTRAL	RMS VOLTAGE MAX PHASE-TO-PHASE	PEAK VOLTAGE MAX PHASE-TO-NEUTRAL	PEAK VOLTAGE MAX PHASE-TO-PHASE	DC VOLTAGE MAX	AC CURRENT MAX (PROBE DEPENDENT)	DC CURRENT MAX (PROBE DEPENDENT)	RATIOS VOLT	RATIOS AMPERE
8333	2136.10	4 V / 3 I	3 V / 4 I	1000 Vrms	2000 Vrms	1414 Vpk	2828 Vpk	1200 V <sub>DC</sub>	10,000 A <sub>AC</sub>	1300 A <sub>DC</sub>		Yes
8336	2136.30	5 V / 4 I	4 V / 4 I	1000 Vrms	2000 Vrms	1414 Vpk	2828 Vpk	1200 V <sub>DC</sub>	10,000 A <sub>AC</sub>	5000 A <sub>DC</sub>		Yes
8345	2136.35	5 V / 4 I	4 V / 4 I	1000 Vrms	2000 Vrms	1414 Vpk	2828 Vpk	1200 V <sub>DC</sub>	10,000 A <sub>AC</sub>	5000 A <sub>DC</sub>		Yes
8436	2136.43	5 V / 4 I	4 V / 4 I	1000 Vrms	2000 Vrms	1414 Vpk	2828 Vpk	1200 V <sub>DC</sub>	10,000 A <sub>AC</sub>	5000 A <sub>DC</sub>		Yes
PEL 52	2137.71	2 V / 2 I		600 Vrms	1200 Vrms	-			3600 A <sub>AC</sub>	-	No	Yes
PEL 102	2137.51	4 V / 3 I	3 V / 3 I	1000 Vrms	1700 Vrms	1414 Vpk	2400 Vpk	1000 V <sub>DC</sub>	12,000 A <sub>AC</sub>	5000 A <sub>DC</sub>		Yes
PEL 103	2137.52	4 V / 3 I	3 V / 3 I	1000 Vrms	1700 Vrms	1414 Vpk	2400 Vpk	1000 V <sub>DC</sub>	12,000 A <sub>AC</sub>	5000 A <sub>DC</sub>		Yes
PEL 105	2137.57	5 V / 4 I	4 V / 4 I	1000 Vrms		1414 Vpk	2400 Vpk	1000 V <sub>DC</sub>	12,000 A <sub>AC</sub>	5000 A <sub>DC</sub>		Yes

MODEL	CAT. #	DISTRIBUTION SYSTEMS	PHASE ROTATION	WAVEFORM MODE	TRANSIENT MODE	TRUE INRUSH <sup>®</sup> MODE / TYPE / DURATION	ALARM MODE	SNAPSHOT MODE	HARMONIC MODE / INTERHARMONIC MODE	TYPE LCD	POWER SOURCE
8333	2136.10	1 P-2 W, 2 P-3 W, 3 P-3 W, 3 P-4 W		Yes		No	10 types / up to 2 active / 4662 recorded	Yes (12)	Yes / No	TFT - 5.7 in diagonal 320 x 240 resolution	External adapter with internal NiMH battery pack
8336	2136.30	1 P-2 W, 1 P-3 W, 2 P-2 W, 2 P-3 W, 2 P-4 W, 3 P-3 W, 3 P-4 W, 3 P-5 W		Yes		Yes (RMS+PEAK & RMS) up to 1 & 10 min	40 types / up to 7 active / 16,362 recorded	Yes (50)	Yes / No	TFT - 5.7 in diagonal 320 x 240 resolution	External adapter with internal NiMH battery pack
8345	2136.35	1 P-2 W, 1 P-3 W, 2 P-2 W, 2 P-3 W, 2 P-4 W, 3 P-3 W, 3 P-4 W, 3 P-5 W		Yes		Yes (RMS+PEAK & RMS) up to 10 & 30 min	40 types / 20,000 w / email notifications	Yes (no limit with SD card)	DC to 127 <sup>th</sup> order; < 3 % U <sub>din</sub> / 0 to 62 <sup>nd</sup> order; < 0.5 % U <sub>din</sub>	7 in color LCD touch screen: 800 x 480 (WVGA)	External adapter with Li-ion battery pack
8436	2136.43	1 P-2 W, 1 P-3 W, 2 P-2 W, 2 P-3 W, 2 P-4 W, 3 P-3 W, 3 P-4 W, 3 P-5 W		Yes		Yes (RMS+PEAK & RMS) up to 1 & 10 min	40 types / up to 7 active / 16,362 recorded	Yes (50)	Yes / No	TFT - 5.7 in diagonal 320 x 240 resolution	Line Power with internal NiMH battery pack
PEL 52	2137.71	1 P-2 W, 2 P-3 W, 1 P-3 W	Yes				No			Monochrome LCD	Power phase input with internal NiMH battery pack
PEL 102	2137.51	1 P-2 W, 1 P-3 W, 3 P-3 W D2, 3 P-3 W O2, 3 P-3 W Y2, 3 P-3 W D3, 3 P-3 W O3, 3 P-3 W Y, 3P-3 W DB, 3 P-4 W Y, 3 P-4 W YB, 3 P-4 W Y2 1/2, 3 P-4 W D, 3 P-4 W OD, DC-2 W DC-3 W, DC-4 W	Yes			No			Yes / No	None	Line Power with internal NiMH battery pack
PEL 103	2137.52	1 P-2 W, 1 P-3 W, 3 P-3 W D2, 3 P-3 W O2, 3 P-3 W Y2, 3 P-3 W D3, 3 P-3 W O3, 3 P-3 W Y, 3P-3 W DB, 3 P-4 W Y, 3 P-4 W YB, 3 P-4 W Y2 1/2, 3 P-4 W D, 3 P-4 W OD, DC-2 W DC-3 W, DC-4 W	Yes			No			Yes / No	Monochrome LCD	Line Power with internal NiMH battery pack
PEL 105	2137.57	1 P-2 W, 1 P-3 W, 3 P-3 W D2, 3 P-3 W O2, 3 P-3 W Y2, 3 P-3 W D3, 3 P-3 W O3, 3 P-3 W Y, 3P-3 W DB, 3 P-4 W Y, 3 P-4 W YB, 3 P-4 W Y2 1/2, 3 P-4 W D, 3 P-4 W OD, DC-2 W DC-3 W, DC-4 W	Yes			No			Yes / No	Monochrome LCD	Power phase input or external adapter with internal NiMH battery pack

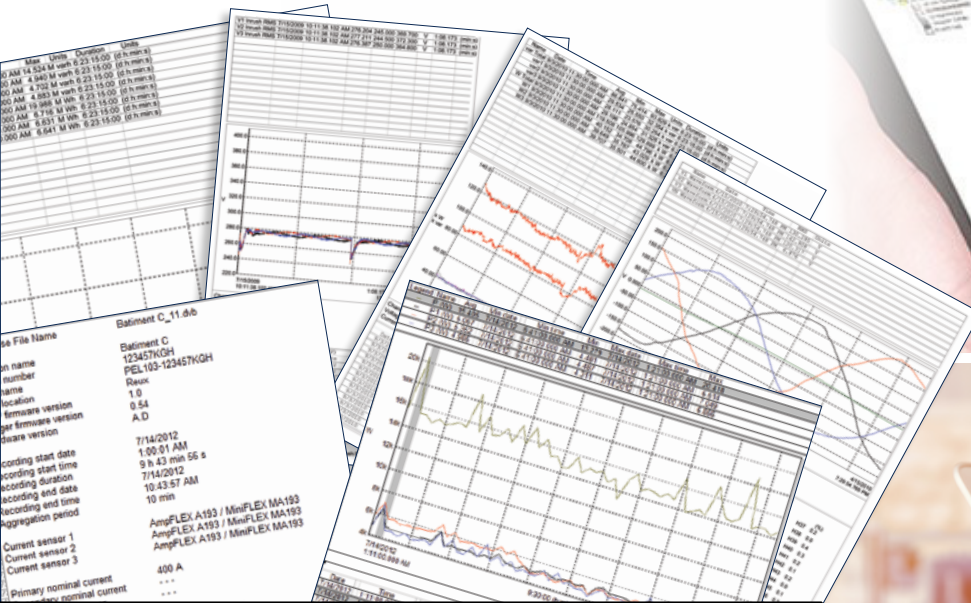


# POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS

## DataView<sup>®</sup> Data Analysis and Reporting Software

### Configure all functions:

- Display and analyze real-time data on your PC
- Configure functions and parameters from your PC
- Customize views, templates and reports to your exact needs
- Create and store a complete library of configurations that can be uploaded as needed
- Zoom in and out and pan through sections of the graph to analyze the data
- Download, display and analyze recorded data
- Display waveforms, trend graphs, harmonic spectrums, text summaries, transients, event logs and stored alarms
- Print reports using standard or custom templates you design
- Free updates available on our website [www.aemc.com](http://www.aemc.com)



Reports can be displayed on a PC and printed. Each report includes all test results in a tabular and graphic format, as well as operator and test site information. Comments typed by the operator will also be included.

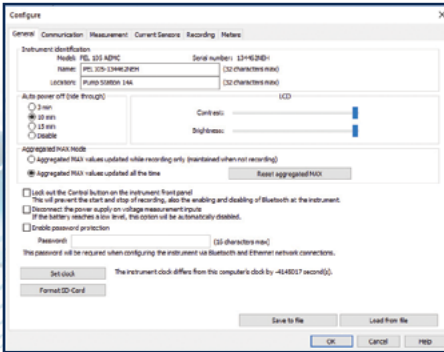


# POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS

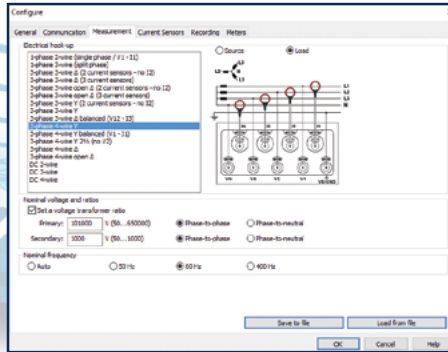
## DataView® Data Analysis and Reporting Software



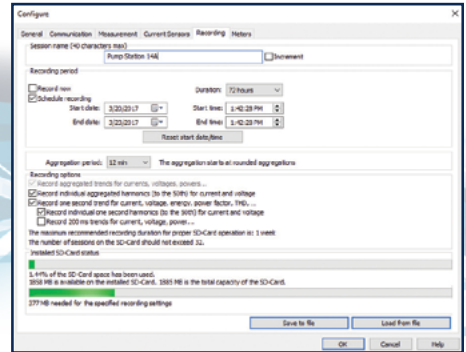
DataView® software, user manual and quick start guide are included in the USB Drive



Configure basic information regarding Auto Power OFF, instrument name and location, display contrast and brightness (*Models PEL 103 & PEL 105*), setting of the real-time clock and SD-card formatting is easily accomplished from the General tab.



The Measurement tab specifies the electrical distribution system, voltage ratios, and nominal frequency.

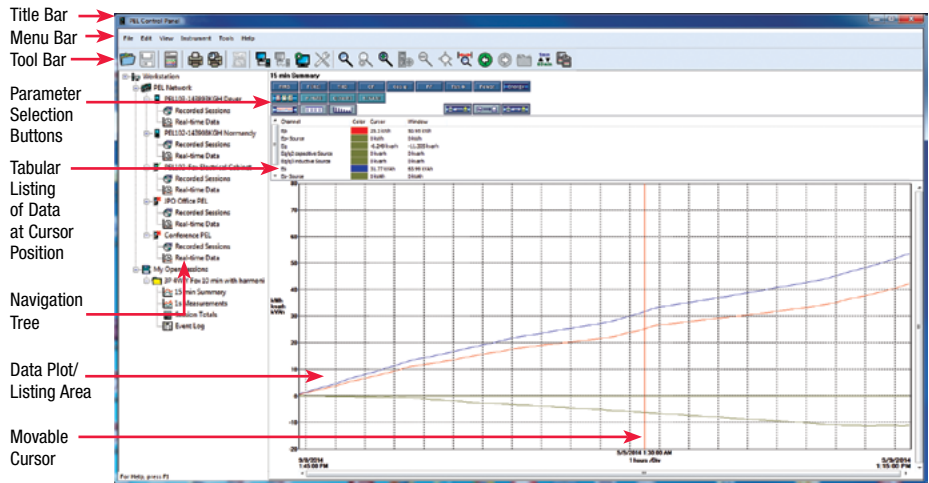


In the Recording tab, configure the instrument to measure (*and record*) over a user selectable recording period. Select demand intervals and view available memory for data storage.

## Typical DataView® Functional Digital & Graphical Display

### Control Panel Trend View

In the PEL Control Panel you will find all the necessary tools and selection buttons to review recorded data as trend plots or tabular lists.



**NEW!** Effortlessly Perform Load Study Analysis Meeting the NEC 220.87 Requirements with the PEL DataView® Control Panel Feature